| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 24 | (colli$5 near5 detect$3) and ((velocity or speed or acceleration) near6 (random) near6 (data or sample)) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:34 |
| L2 | 1374 | ((velocity or speed or acceleration) near6 (random) near6 (data or sample)) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:34 |
| L3 | 6074 | 382/104,199,281,291.ccls. or 701/65,208,209,300,301,302.ccls. or 340/931,932,961.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:34 |
| L4 | 5 | 2 and 3 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:34 |
| S1 | 14899 | (collision near5 detect$3) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 14:56 |
| S2 | 33 | 382/104.ccls. and S1 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/07 13:38 |
| S3 | 47 | (colli$5 near5 detect$3) and (size same (position or coordinat$4) same (velocity or speed) same (trajectory or path)) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 14:59 |
| S4 | 8 | "382"/$.ccls. and S3 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/07 17:40 |
| S5 | 28 | 382/104,199,281,291.ccls. and 701/65,208,209,300,301,302.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 14:59 |
| S6 | 5791 | 382/104,199,281,291.ccls. or 701/65,208,209,300,301,302.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 16:07 |
| S7 | 121 | (colli$5 near5 detect$3) and (vector near6 (classif$7 or group$3)) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 15:22 |
| S8 | 7 | S6 and S7 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 15:05 |

| S9 | 350 | (colli$5 near5 detect$3) and (vector same (classif$7 or group$3)) | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:21 |
|-----|------|---------------------------------------------------------------------------------------|-------------------------------------|-----|-----|---------------------|
| S10 | 12 | S6 and S9 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 15:22 |
| S11 | 6065 | 382/104,199,281,291.ccls. or 701/65,208,209,300,301,302.ccls. or 340/931,932,961.ccls. | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/22 16:34 |
| S12 | 13 | S9 and S11 | US-PGPUB; USPAT; EPO; JPO; DERWENT | OR | ON | 2005/02/18 16:07 |

| Set | Items | Description |
|---|---|---|
| S1 | 50165 | VISION(3N)SYSTEM? |
| S2 | 2533990 | TARGET?? OR OBJECT?? OR OBSTACLE? |
| S3 | 167479 | (IDENTIF? OR CLASSIFI? OR SIZE OR DETECT? OR DETERMIN? OR - TRACK?)(3N)S2 |
| S4 | 1418797 | AUTO OR AUTOMOBILE? OR CAR OR CARS OR VEHICLE? OR TRUCK?? |
| S5 | 517794 | COLLISION?? |
| S6 | 75048 | (MOVE OR MOVING OR MOVED OR POSITION OR LOCAT?)(3N)S2 |
| S7 | 45042 | (PROXIMAT? OR CLOSEBY OR NEARBY OR NEAR) AND S4 |
| S8 | 26366 | S5 AND AVOID? |
| S9 | 172433 | S4 AND (ADJUST? OR ADAPT? OR MODIF? OR CHANG?) |
| S10 | 8427 | (WARN? OR ALARM? OR ALERT? OR ALARUM OR NOTIF? OR NOTICE OR PROMPT?) AND DRIVER? |
| S11 | 2862778 | IMAG? |
| S12 | 61169 | STEREO |
| S13 | 9521 | (S11 OR MAPS)(3N)DEPTH |
| S14 | 30973 | (COMPAR? OR MATCH? OR CORRESPOND? OR CORRELAT?) AND TEMPLA-TE?? |
| S15 | 54254 | KALMAN(3N)FILTER? |
| S16 | 27759 | LOW()PASS()FILTER? |
| S17 | 708 | AU=(CAMUS, T? OR HIRVONEN, D? OR MANDELBAUM, R? OR CALL, B? OR HILL, I? OR RIEDER, A? OR SOUTHALL, J?) |
| S18 | 3542 | S3 AND S11 AND S12 |
| S19 | 0 | S18 AND S15 AND S16 |
| S20 | 172 | S18 AND (S15 OR S16) |
| S21 | 5 | S20 AND S5 |
| S22 | 5 | RD S21 (unique items) |

```
S23        10     S20 AND (S8 OR S9 OR S10)
S24         5     S23 NOT S21
S25         5     RD S24 (unique items)
S26         3     S20 AND S14
S27         3     S26 NOT (S23 OR S21)
S28         2     RD S27 (unique items)
S29        14     S17 AND S1
S30        14     S29 NOT (S26 OR S23 OR S21)
S31        12     RD S30 (unique items)
S32       257     S6 AND S7
S33        94     S32 AND S8:S10
S34         0     S33 AND (S13 OR S14)
S35         0     S33 AND S11 AND DEPTH
S36         5     S33 AND (S15 OR S16)
S37         5     S36 NOT (S30 OR S26 OR S23 OR S21)
S38         3     RD S37 (unique items)
S39       118     S1 AND S3 AND S4 AND S5
S40        85     S39 AND (S11 OR S12 OR S13 OR S15 OR S16)
S41        17     S39 AND S11 AND S12
S42        15     S41 NOT (S36 OR S30 OR S26 OR S23 OR S21)
S43        14     RD S42 (unique items)
S44         5     S39 AND S13
S45         3     S44 NOT (S41 OR S36 OR S30 OR S26 OR S23 OR S21)
S46         1     RD S45 (unique items)
S47         1     S39 AND S14
S48         1     S47 NOT (S44 OR S41 OR S36 OR S30 OR S26 OR S23 OR S21)
S49        10     S39 AND (S14 OR S15)
S50         9     S49 NOT (S47 OR S44 OR S41 OR S36 OR S30 OR S26 OR S23 OR -
                  S21)
S51         8     RD S50 (unique items)
```

22/3,K/1      (Item 1 from file: 2)
DIALOG(R)File    2:INSPEC
(c) 2005 Institution of Electrical Engineers. All rts. reserv.

7309983    INSPEC Abstract Number: B2002-08-6135-098, C2002-08-5260B-118
   **Title:  Vision-based real-time** obstacles   detection **and** tracking **for autonomous vehicle guidance**
   Author(s): Ming Yang; Qian Yu; Hong Wang; Bo Zhang
   Author Affiliation: State Key Lab. of Intelligent Technol. & Syst., Tsinghua Univ., Beijing, China
   Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference  Title: /Proc.  SPIE - Int. Soc. Opt. Eng. (USA) vol.4666    p.65-74
   Publisher: SPIE-Int. Soc. Opt. Eng,
   Publication Date: 2002  Country of Publication: USA
   CODEN: PSISDG  ISSN: 0277-786X
   SICI: 0277-786X(2002)4666L.65:VBRT;1-L
   Material Identity Number: C574-2002-185
   U.S. Copyright Clearance Center Code: 0277-786X/02/$15.00
   Conference Title: Real-Time Imaging VI
   Conference Sponsor: SPIE
   Conference Date: 23-24 Jan. 2002    Conference Location: San Jose, CA, USA
   Language: English
   Subfile: B C
   Copyright 2002, IEE

   **Title: Vision-based real-time** obstacles   detection **and** tracking **for autonomous vehicle guidance**
   Abstract: The, ability of **obstacles   detection** and **tracking** is essential for the safe visual guidance of autonomous vehicles, especially in urban environments. In this paper, we first overview different plane projective transformation (PPT) based **obstacle  detection** approaches under the planar ground assumption. Then, we give a simple proof of this approach...

... projective and affine frameworks by generalization and specialization. Next, we present a real-time hybrid **obstacle  detection** method, which combined the PPT based method with the region segmentation based method to provide more accurate locations of obstacles. At last, with the vehicle's position information, a **Kalman  Filter** is applied to **track  obstacles** from frame to frame. This method has been tested on THMR-V (Tsinghua Mobile Robot...
   Descriptors: **collision** avoidance...

... **Kalman  filters** ; ...

... **stereo  image** processing
   Identifiers: vision-based real-time **obstacles  detection** ; ...

... **obstacles  tracking** ; ...

...plane projective transformation based **obstacle  detection** ; ...

... **Kalman  filter** ; ...

... **stereo** vision

22/3,K/2      (Item 2 from file: 2)
DIALOG(R)File   2:INSPEC

6821620    INSPEC Abstract Number: B2001-03-7630-001, C2001-03-3360L-001
   Title: **An** obstacle  detection **and warning system for aircraft navigation at airports**
   Author(s): Gallo, L.
   Author Affiliation: Aerospatiale Matra Missiles, Chatillon, France
   Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA) vol.4023    p.13-19
   Publisher: SPIE-Int. Soc. Opt. Eng,
   Publication Date: 2000  Country of Publication: USA
   CODEN: PSISDG  ISSN: 0277-786X
   SICI: 0277-786X(2000)4023L.13:ODWS;1-X
   Material Identity Number: C574-2000-196
   U.S. Copyright Clearance Center Code: 0277-786X/2000/$15.00
   Conference Title: Enhanced and Synthetic Vision 2000
   Conference Sponsor: SPIE
   Conference Date: 24-25 April 2000   Conference Location: Orlando, FL, USA
   Language: English
   Subfile: B C
   Copyright 2001, IEE
   Title: **An** obstacle  detection **and warning system for aircraft navigation at airports**
   Abstract: This paper discusses work conducted by AEROSPATIALE MATRA on the development of an **obstacle  detection** system, which has been tested on a demonstrator aircraft in Toulouse. The purpose of this...
   ...Descriptors: **collision** avoidance...

... **image** reconstruction...

... **Kalman filters** ; ...

... **stereo  image** processing
   Identifiers: **obstacle  detection** system...

... **stereo** vision...

... **Kalman filter**


22/3,K/3      (Item 1 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)

06201056   E.I. No: EIP02467203926
   Title: **Vision-based real-time** obstacles  detection **and** tracking **for autonomous vehicle guidance**
   Author: Yang, Ming; Yu, Qian; Wang, Hong; Zhang, Bo
   Corporate Source: Tsinghua University, Beijing 100084, China
   Conference Title: Real-Time Imaging VI
   Conference Location: San Jose, CA, United States   Conference Date: 20020123-20020124
   E.I. Conference No.: 60155

Title: **Vision-based real-time** obstacles detection **and** tracking **for**
**autonomous vehicle guidance**

Abstract: The ability of **obstacles detection** and **tracking** is
essential for the safe visual guidance of autonomous vehicles, especially
in urban environments. In this paper, we first overview different plane
projective transformation (PPT) based **obstacle detection** approaches
under the planar ground assumption. Then, we give a simple proof of this
approach...

...projective and affine frameworks by generalization and specialization.
Next, we present a real-time hybrid **obstacle detection** method, which
combined the PPT based method with the region segmentation based method to
provide more accurate locations of obstacles. At last, with the vehicle's
position information, a **Kalman filter** is applied to **track obstacles**
from frame to frame. This method has been tested on THMR-V (Tsinghua Mobile
Robot...

Descriptors: *Computer vision; **Collision** avoidance; Unmanned vehicles;
**Stereo** vision; **Image** segmentation; **Kalman filtering** ; Mobile robots;
Algorithms
Identifiers: **Obstacle detection** ; Autonomous vehicle guidance; Plane
projective transformation; Relative affine

**22/3,K/4        (Item 2 from file: 8)**
DIALOG(R)File   8:Ei Compendex(R)
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06084536   E.I. No: EIP02277005208
Title: **Realtime omnidirectional** stereo **for** obstacle detection **and**
tracking **in dynamic environments**
Author: Koyasu, Hiroshi; Miura, Jun; Shirai, Yoshiaki
Corporate Source: Dept. of Comp.-Controlled Mech. Sys. Osaka University,
Suita, Osaka 565-0871, Japan

Title: **Realtime omnidirectional** stereo **for** obstacle detection **and**
tracking **in dynamic environments**
Abstract: This paper describes a realtime omnidirectional **stereo** system
and its application to **obstacle detection** and **tracking** for a mobile
robot. The **stereo** system uses two omnidirectional cameras aligned
vertically. The **images** from the cameras are converted into panoramic
**images** , which are then examined for **stereo** matching along vertical
epipolar lines. A PC cluster system composed of 6 PCs can generate...

...data of 720x100 pixels with disparity range of 80 about 5 frames per second. For **obstacle detection** , a map of static obstacles is first generated. Then candidates for moving obstacles are extracted...

...candidates are established based on their estimated position and velocity which are calculated using a **Kalman filter** -based tracking. Experimental results for a real scene are described. 10 Refs.
   Descriptors: *Mobile robots; Computer vision; **Stereo** vision; Motion control; **Collision** avoidance; Pattern matching; **Imaging** systems; Real time systems; Cameras; Personal computers; **Kalman filtering**
   Identifiers: Omnidirectional **stereo** system; **Obstacle detection** ; **Stereo** matching


   **22/3,K/5      (Item 3 from file: 8)**
DIALOG(R)File    8:Ei Compendex(R)
(c) 2005 Elsevier Eng.  Info. Inc. All rts. reserv.

04295942    E.I. No: EIP95122936386
   Title: **Real-time estimation and tracking of optical flow vectors for** obstacle detection
   Author: Krueger, W.; Enkelmann, W.; Roessle, S.
   Corporate    Source:    Fraunhofer-Inst    fuer    Informations-    und Datenverarbeitung (IITB), Karlsruhe, Ger
   Conference Title: Proceedings of the 1995 Intelligent Vehicles Symposium
   Conference    Location:    Detroit,    MI,    USA   Conference    Date: 19950925-19950926
   E.I. Conference No.: 44014
   Source:    Intelligent    Vehicles    Symposium,    Proceedings   1995.   IEEE, Piscataway, NJ, USA,95TH8132. p 304-309
   Publication Year: 1995
   CODEN: 001680
   Language: English

   Title: **Real-time estimation and tracking of optical flow vectors for** obstacle detection
   ...Abstract: of a camera relative to its environment and about the three-dimensional structure of the **imaged** scene. In this contribution we use that information to **detect obstacles** in front of a moving vehicle. Since the detection is based on motion no a...

...frame rate by the custom-designed hardware MiniVISTA. To eliminate outliers and to speed up **obstacle detection** by data reduction the estimated vectors are clustered before they are passed to the obstacle...

...and to separate elevated objects from the ground plane. In continuation of our previous work, **obstacle detection** is regarded as a state estimation problem. This enables us to enlarge the motion **stereo** basis by applying a **Kalman filter** to track optical flow vectors over subsequent **image** frames. Experimental results obtained from **image** sequences recorded with our experimental vehicle are presented. (Author abstract) 12 Refs.
   Descriptors: *Intelligent vehicle highway systems; **Collision** avoidance; Optical flows; Object recognition; Vectors; State estimation; **Image** analysis; **Kalman filtering** ; Data reduction
   Identifiers: **Obstacle detection** ; Moving vehicles

7137003    INSPEC Abstract Number: C2002-02-5260A-002
  **Title:** Adaptive **information filter for the fusion of data from the** object - detecting **sensors of an autonomous** vehicle
  Author(s): Becker, J.C.
  Author Affiliation: Inst. of Control Eng., Tech. Univ. Braunschweig, Germany
  Conference Title: Control in Transportation Systems 2000. Proceedings volume from the 9th IFAC Symposium    Part vol.1    p.247-52 vol.1
  Editor(s): Schnieder, E.; Becker, U.
  Publisher: Elsevier Sci, Kidlington, UK
  Publication Date: 2001  Country of Publication: UK    2 vol.xiii+622 pp.
  ISBN: 0 08 043552 1     Material Identity Number: XX-2000-01195
  Conference Title: Proceedings of 9th Symposium on Control in Transportation Systems
  Conference Sponsor: IFAC; GES - Social Impact of Autom.; TVA - Autom. Control; TVC - Air Traffic Control Autom.; et al
  Conference Date: 13-15 June 2000    Conference Location: Braunschweig, Germany
  Language: English
  Subfile: C
  Copyright 2002, IEE
  **Title:** Adaptive **information filter for the fusion of data from the** object - detecting **sensors of an autonomous** vehicle

  Abstract: This paper describes an **adaptive** information filter for the fusion of sensor data of an autonomous **vehicle** . The **vehicle** sensor system for **object detection** consists of a **stereo** vision sensor, four laserscanners and a radar sensor and provides a high redundancy in the observed area in front of the **vehicle** . The derivation of the information filter as well as its application to sensor data fusion is presented. Maneuver of observed **targets** are **detected** and the filter parameter axe **adapted** accordingly. The information filter fusion is compared to the **Kalman filter** based measurement fusion.
  Descriptors: **adaptive Kalman filters** ; ...

... **stereo image** processing
  Identifiers: **adaptive** information filter...

... **object - detecting** sensors...

... **vehicle** sensor system...

... **object detection** ; ...
... **stereo** vision sensor...

... **Kalman filter** based measurement fusion...

...autonomous **vehicle** ;

6858926    INSPEC Abstract Number: B2001-04-6135E-059, C2001-04-7445-020

Title: **Robust** vehicle **detection at large distance using low resolution cameras**
Author(s): Knoeppel, C.; Schanz, A.; Michaelis, B.

Title: **Robust** vehicle **detection at large distance using low resolution cameras**

Abstract: This paper describes a robust **vehicle** detection system which detects **vehicles** in the rear view of the host **car** . Two cameras with 12 mm focal length mounted behind the back pane are used. Reliable **vehicle** recognition up to 150 m and the exact track localization of the **vehicles** are the key features of the system. The robust **stereo** algorithm generates **object** hypotheses which are **tracked** with **Kalman filter** . Using the steering angle and the **detected obstacles** , the driven way of the host **vehicle** is reconstructed. This information is used for a lane **change** assistant.
...Descriptors: **image** recognition...

... **image** reconstruction...

... **Kalman filters** ; ...

... **object detection** ; ...

...road **vehicles** ; ...

... **stereo image** processing
Identifiers: robust **vehicle** detection system...

...robust **stereo** algorithm...
... **Kalman filter** ; ...

...lane **change** assistant


25/3,K/3  (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
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04915348  Genuine Article#: UR464  No. References: 13
Title: MODEL-BASED VEHICLE **TRACKING FROM** IMAGE **SEQUENCES WITH AN APPLICATION TO ROAD SURVEILLANCE**
Author(s): KAN WY; KROGMEIER JV; DOERSCHUK PC
Corporate Source: PURDUE UNIV,SCH ELECT ENGN,1285 ELECT ENGN BLDG/W LAFAYETTE//IN/47907
Journal: OPTICAL ENGINEERING, 1996, V35, N6 (JUN), P1723-1729

Title: **MODEL-BASED** VEHICLE **TRACKING FROM** IMAGE **SEQUENCES WITH AN APPLICATION TO ROAD SURVEILLANCE**

Abstract: A model-based approach to **vehicle** tracking is proposed and applied to a highway traffic surveillance problem, which is motivated by...

...Systems for traffic management and traveler information services require accurate and wide-area estimates of **vehicle** velocity and traffic spatial and temporal densities. A detection and tracking algorithm is developed that...

...time implementation using inexpensive microprocessors. Detection thresholds are computed based on a statistical model for **vehicle** and background, and the theoretical detector performance is derived. The tracking algorithm filters position estimates from the detection algorithm using a simple **vehicle** dynamic model and the **Kalman filter** . Data association is accomplished with a nearest neighbor filter coupled with a lane- **change** handling logic. (C) 1996 Society of Photo-Optical Instrumentation Engineers.

Research Fronts: 94-0256 001    (2ND-ORDER MOTION; **STEREO** MATCHING PRECEDES DICHOPTIC MASKING; **OBSTACLE** **DETECTION** )
   94-6697 001    (DETECTION OF NON-GAUSSIAN SIGNALS; RANDOM NUMBER GENERATOR FOR OCEAN NOISE STATISTICS...


 **25/3,K/4      (Item 2 from file: 34)**
DIALOG(R)File   34:SciSearch(R) Cited Ref Sci
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04539163    Genuine Article#: TQ671    No. References: 14
Title: **ONLINE TRAINING OF RECURRENT NEURAL NETWORKS WITH CONTINUOUS TOPOLOGY** ADAPTATION

Author(s): OBRADOVIC D
Corporate Source: SIEMENS AG,CORP RES & DEV,ZFE T SN 4 OTTO HAHN RING 6/D-81739 MUNICH//GERMANY/

Title: **ONLINE TRAINING OF RECURRENT NEURAL NETWORKS WITH CONTINUOUS TOPOLOGY** ADAPTATION

...Abstract: line procedure for training dynamic neural networks with input-output recurrences whose topology is continuously **adjusted** to the complexity of the target system dynamics. The latter is accomplished by **changing** the number of the elements of the network hidden layer whenever the existing topology cannot...

...data. The training mechanism developed in this work is based on the suitably altered extended **Kalman** **filter** (EKF) algorithm which is simultaneously used for the network parameter **adjustment** and for its state estimation. The network itself consists of a single hidden layer with...

...new data point in order not to forget the previously learned dynamics. The continuous topology **adaptation** is implemented in our algorithm to avoid memory and computational problems of using a regular...

...interfering with the already acquired information. In the case when the
target system dynamics are **changing** over time, we show that a
suitable forgetting factor can he used to ''unlearn'' the...
Research Fronts: 94-5197 002   (RECURRENT NEURAL NETWORKS; ONLINE LEARNING
CONTROL OF AUTONOMOUS UNDERWATER **VEHICLES** ; MULTILINEAR PERCEPTRON
CONVERGENCE THEOREM)
  94-0256 001   (2ND-ORDER MOTION; **STEREO** MATCHING PRECEDES DICHOPTIC
  MASKING; **OBSTACLE   DETECTION** )
  94-0812 001   (NEURAL NETWORKS; HOPFIELD ASSOCIATIVE MEMORY; EXACTLY
  SOLVABLE MODEL OF UNSUPERVISED LEARNING)
  94-5820 001   ( **KALMAN   FILTER** ; DATA ASSIMILATION IN NONLINEAR OCEAN
  MODELS; SIMPLE ESTIMATION ALGORITHM FOR PERFORMANCE-SEEKING
  CONTROLLERS; NOISY **IMAGE** SEQUENCES)
  94-6466 001   (RECURSIVE LEAST-SQUARES IDENTIFICATION; MODEL VALIDATION;
  INPUT-OUTPUT DATA; ROBUST MULTIVARIABLE...


 **25/3,K/5      (Item 3 from file: 34)**
DIALOG(R)File  34:SciSearch(R) Cited Ref Sci
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03498029   Genuine Article#: ND687   No. References: 18
**Title:** ADAPTIVE **MODEL ARCHITECTURE AND EXTENDED** KALMAN -BUCY FILTERS
Author(s): COSTA PJ
Corporate Source: UNIV ST THOMAS,CTR APPL MATH,MS4410,2115 SUMMITAVE/ST
PAUL//MN/55105
Journal:.IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS, 1994, V30,
N2 (APR), P525-533
ISSN: 0018-9251
Language: ENGLISH   Document Type: ARTICLE   (Abstract Available)

**Title:** ADAPTIVE **MODEL ARCHITECTURE AND EXTENDED** KALMAN -BUCY FILTERS

Abstract: In radar systems, extended **Kalman** -Bucy **filters** (EKBFs) are
used to estimate state vectors of **objects** in **track** . Filter models
accounting for fundamental aerodynamic forces on reentry **vehicles** are
well known. A general model structure accommodating the dynamics of
reentry **vehicles** in both exoatmospheric and endoatmospheric flight is
presented. The associated EKBFs for these various models...
Research Fronts: 92-1274 003   (EXTENDED **KALMAN   FILTER** ; MULTIPLE MODEL
ESTIMATION; **STEREO** FRAMES; MANEUVERING TARGET; **IMAGE** FUSION
ALGORITHMS; 3-DIMENSIONAL REGISTRATION)
  92-1285 001   (SLIDING MODE CONTROL OF NONLINEAR-SYSTEMS; OUTPUT-FEEDBACK
  STABILIZATION; ROBOTIC MANIPULATORS; GLOBAL **ADAPTIVE** OBSERVERS)
  92-3390 001   (NONSYMMETRIC RICCATI MATRIX DIFFERENTIAL-EQUATIONS;
  COUPLED POINTS; OPTIMAL FILTERING)
?

28/3,K/1      (Item 1 from file: 2)
DIALOG(R)File   2:INSPEC

8100667    INSPEC Abstract Number: B2004-10-6135-576, C2004-10-5260B-635
   Title:   Stereo **person tracking with adaptive plan-view** templates  of
**height and occupancy statistics**
   Author(s): Harville, M.
   Author Affiliation: Hewlett-Packard Labs., Palo Alto, CA, USA

   **Title:**   Stereo   **person tracking with adaptive plan-view** templates  **of
height and occupancy statistics**
   Abstract: As the cost of computing per-pixel depth **imagery** from **stereo**
cameras in real time has fallen rapidly in recent years, interest in using
**stereo**  vision  for  person tracking has greatly increased. Methods that
attempt  to track people directly in these 'camera-view' depth **images** are
confronted  by their substantial amounts of noise and unreliable data. Some
recent methods have...

... first  compute  overhead, 'plan-view' statistics of the depth data, and
then  track  people  in   **images**   of  these  statistics. We describe a new
combination  of  plan-view  statistics  that better represents the shape of
**tracked    objects**   and  provides  a  more  robust  substrate for person
detection and tracking than prior plan-view algorithms. We also introduce a
new  method  of  plan-view  person  tracking,  using  adaptive  statistical
**templates**  and  Kalman  prediction.  Adaptive **templates**  provide  more
detailed  models  of  **tracked    objects**  than  prior  choices  such  as
Gaussians,  and  we  illustrate  that  the  typical problems with **template**
-based  tracking  in camera-view **images** are easily avoided in a plan-view
framework.  We  **compare**   results  of our method with those for techniques
using different plan-view statistics or person...
   ...Descriptors: **Kalman    filters** ; ...

... **stereo    image** processing
   Identifiers: **stereo**  person tracking...

...adaptive plan-view  **template** ; ...

...camera-view  **image** ; ...

... **stereo**  depth  **images** ; ...

... **Kalman    filter**


 28/3,K/2     (Item 2 from file: 2)
DIALOG(R)File   2:INSPEC

7810527    INSPEC Abstract Number: B2004-01-6135E-155, C2004-01-5260A-017
 Title: **Vision data fusion for** target   tracking
  Author(s): Zhen, J.; Balasuriya, A.; Challa, S.
  Author Affiliation: Sch. of Electr. & Electron. Eng., Nanyang Technol. Univ., Singapore
  Conference Title: Proceedings of the Sixth International Conference on Information Fusion   p.462-9
  Publisher: Univ. New Mexico, Gallup, NM, USA
  Publication Date: 2003  Country of Publication: USA    CD-ROM pp.
  Material Identity Number: XX-2003-02089
  Conference Title: Sixth International Conference on Information Fusion
  Conference Date: 8-11 July 2003   Conference Location: Cairns, Qld., Australia
  Language: English
  Subfile: B C
  Copyright 2003, IEE

 Title: **Vision data fusion for** target   tracking
  Abstract: We propose a novel approach and a system for **object detection** and **tracking** using video sensors. Optical flow technique is used to derive the dynamic scene properties from the **image** sequences captured from **stereo** CCD cameras. Here, it is proposed to use the K-means clustering algorithm along with a **template matching** algorithm to **identify** the **target** from the 2D optical flow fields. Visual depth information of the interested target is calculated based on the disparity of the **stereo image** . The proposed **target - tracking** algorithm fuses different optical features to identify the relative position and speed of the target with respect to the camera system. An extended **Kalman filter** is used to **track** the **target** in the **image** sequence. In order to test the performance of the proposed algorithm, an experiment is conducted using **stereo image** sequences of a moving object. We present the vision based **target identification** and **tracking** algorithm used in mobile robot navigation for a **target tracking** and following mission. We also discusses the potential applications of this algorithm in mobile robotics.
  Descriptors: CCD **image** sensors...

... **image matching** ; ...

... **image** motion analysis...

... **image** sequences...

... **Kalman filters** ; ...
... **object detection** ; ...

... **stereo image** processing...

... **target tracking**
  ...Identifiers: **target tracking** ; ...

... **object detection** ; ...

... **stereo image** sequence...

... **stereo** CCD camera...

31/3,K/1     (Item 1 from file: 2)
DIALOG(R)File   2:INSPEC

8160820   INSPEC Abstract Number: B2004-12-6135-284, C2004-12-7445-052
  Title: **Stereo-based** vision system **for automotive imminent collision detection**
  Author(s): Peng Chang; **Camus, T. ; Mandelbaum, R.**
  Author Affiliation: Sarnoff Corp., Princeton, NJ, USA
  Conference Title: 2004 IEEE Intelligent Vehicles Symposium (IEEE Cat. No.04TH8730)   p.274-9
  Publisher: IEEE, Piscataway, NJ, USA
  Publication Date: 2004  Country of Publication: USA   xxxiv+956 pp.
  ISBN: 0 7803 8310 9     Material Identity Number: XX-2004-01583
  U.S. Copyright Clearance Center Code: 0 7803 8310 9/2004/$20.00
  Conference Title: 2004 IEEE Intelligent Vehicles Symposium
  Conference Date: 14-17 June 2004     Conference Location: Parma, Italy
  Language: English
  Subfile: B C E
  Copyright 2004, IEE

  Title: **Stereo-based** vision system **for automotive imminent collision detection**
  Author(s): Peng Chang; **Camus, T. ; Mandelbaum, R.**
  Identifiers: stereo based **vision system ;**


31/3,K/2     (Item 2 from file: 2)
DIALOG(R)File   2:INSPEC

6606777   INSPEC Abstract Number: C2000-07-3390C-020
  Title: **Real-time single-workstation obstacle avoidance using only wide-field flow divergence**
  Author(s): **Camus, T. ;** Coombs, D.; Herman, M.; Tsai-Hong Hong
  Author Affiliation: Nat. Inst. of Stand. & Technol., Moorestown, NJ, USA
  Journal: Videre   vol.1, no.3
  Publication URL: http://mitpress.mit.edu/e-journals/Videre/
  Publisher: MIT Press,
  Publication Date: Summer 1999  Country of Publication: USA
  CODEN: VIDRFK  ISSN: 1089-2788
  Material Identity Number: H350-2000-001
  Language: English
  Subfile: C
  Copyright 2000, IEE

  Author(s): **Camus, T. ;** Coombs, D.; Herman, M.; Tsai-Hong Hong
  Abstract: This paper describes a real-time robot **vision system** that uses only the divergence of the optical flow field for both steering control and...


31/3,K/3     (Item 3 from file: 2)
DIALOG(R)File   2:INSPEC

6091290   INSPEC Abstract Number: B9901-6135-038, C9901-5260B-058
  Title: **A low cost** vision system **for automotive applications**

Author(s): Gregor, R.; Baten, S.; von Holt, V.; Lutzeler, M.; Maurer, M.;
**Rieder, A.** ; Dickmanns, E.D.
Author Affiliation: Munchen Univ., Germany
Conference Title:\ 30th International Symposium on Automotive Technology
and\ Automation. Robotics, Motion and Machine Vision in the Automotive
Industries    p.195-201
Editor(s): Roller, D.
Publisher: Automotive Autom, Croydon, UK
Publication Date: 1997  Country of Publication: UK    480 pp.
ISBN: 0 947719 97 0    Material Identity Number: XX98-02682
Conference Title: 30th International Symposium on Automotive Technology
and Automation. Robotics, Motion and Machine Vision in the Automotive
Industries
Conference Date: 16-19 June 1997   Conference Location: Florence, Italy
Language: English          .
Subfile: B C
Copyright 1998, IEE

**Title: A low cost** vision  system **for automotive applications**
Author(s): Gregor, R.; Baten, S.; von Holt, V.; Lutzeler, M.; Maurer, M.;
**Rieder, A.** ; Dickmanns, E.D.

Abstract: Among other things, high costs have been a major barrier for
market introduction of **vision** **systems** in automobiles. The requirements
on computing performance and communication bandwidth could only be
satisfied by...

...implementation of the `4-D approach' developed at UBM allow to realize a
low-cost **vision** **system** for automotive applications based on mainstream
PC hardware. This new system reaches top rank performance like the
predecessors at UBM for a small fraction of their costs. The **vision**
**system** presented has been designed for autonomous road vehicle guidance,
but could also be used for...
...Identifiers: low-cost **vision** **system** ;


31/3,K/4      (Item 1 from file: 8)
DIALOG(R)File    8:Ei Compendex(R)
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07041384    E.I. No: EIP04408382195
   **Title: Stereo-based** vision  system **for automotive imminent collision
detection**
Author: Chang, Peng; **Camus, Theodore** ; **Mandelbaum, Robert**
Corporate Source: Sarnoff Corporation, Princeton, NJ 08543, United States .
Conference Title: 2004 IEEE Intelligent Vehicles Symposium
Conference Location: Parma, Italy   Conference Date: 20040614-20040617
E.I. Conference No.: 63502
Source: IEEE Intelligent Vehicles Symposium, Proceedings 2004 IEEE
Intelligent Vehicles Symposium 2004.
Publication Year: 2004
Language: English

   **Title: Stereo-based** vision  system **for automotive imminent collision
detection**
Author: Chang, Peng; **Camus, Theodore** ; **Mandelbaum, Robert**


31/3,K/5      (Item 2 from file: 8)

06139077    E.I. No: EIP02397099557
   Title:  **Methodology  and  apparatus for using the human iris as a robust
biometric**
   Author:   DellaVecchia,  Michael;  Chmielewski,  Thomas;  **Camus,  Ted  ;**
Salganicoff, Marcos; Negin, Michael
   Corporate Source: Wills Eye Hospital, Philadelphia, PA, United States
   Conference Title: Proceedings of Ophthalmic Technologies VIII
   Conference  Location:  San  Jose,  CA,  United  States  Conference Date:
19980124-19980125
   E.I. Conference No.: 59608
   Source:  Proceedings  of  SPIE  -  The  International Society for Optical
Engineering v 3246 1998. p 65-74
   Publication Year: 1998
   CODEN: PSISDG   ISSN: 0277-786X
   Language: English

   Author:   DellaVecchia,  Michael;  Chmielewski,  Thomas;  **Camus,  Ted  ;**
Salganicoff, Marcos; Negin, Michael
   ...Abstract: non-visible near infrared illumination. The initial  image
acquisition uses a stereo camera pair OD **vision ) system** to  locate  the
subject within a relatively large operational volume. The resulting
coordinates of the...


   **31/3,K/6      (Item 3 from file: 8)**

05786973    E.I. No: EIP01025528372
   Title: **EMS-vision: application to hybrid adaptive cruise control.**
   Author: Hofmann, U.; **Rieder, A. ;** Dickmanns, E.D.
   Corporate  Source: Universitaet der Bundeswehr Muenchen (UBM), Neubiberg,
Ger
   Conference  Title: Proceedings of the IEEE Intelligent Vehicles Symposium
2000
   Conference Location: Dearbon, MI, USA
   Source:  IEEE  Intelligent  Vehicles  Symposium,  Proceedings 2000. IEEE,
Piscataway, NJ, USA,00TH8511. p 468-473
   Publication Year: 2000
   CODEN: 001680
   Language: English

   Author: Hofmann, U.; **Rieder, A. ;** Dickmanns, E.D.
   Descriptors: *Intelligent vehicle highway systems; Velocity control;
Adaptive control **systems ;** Computer **vision ;** Radar tracking; Image
sensors


   **31/3,K/7      (Item 4 from file: 8)**

05169657    E.I. No: EIP98114475067
   Title: **Vision for autonomous mobility: Image processing on the VFE-200**
   Author: **Mandelbaum, R. ;** Hansen, M.; Burt, P.; Baten, S.

Corporate Source: Sarnoff Corp, Princeton, NJ, USA
Conference Title: Proceedings of the 1998 IEEE International Symposium on
Intelligent Control, ISIC
Conference    Location:    Gaithersburg,    MD,    USA    Conference    Date:
19980914-19980917
E.I. Conference No.: 49224
Source: IEEE International Symposium on Intelligent Control - Proceedings
1998. IEEE, Piscataway, NJ, USA,98CH36262. p 671-676
Publication Year: 1998
CODEN: 85PUAU
Language: English

Author:  **Mandelbaum, R.**  ; Hansen, M.; Burt, P.; Baten, S.
...Descriptors: control; Mobile robots; Computer vision; Motion planning;
Collision avoidance; Algorithms; Control system synthesis; Real time
**systems** ; Stereo  **vision** ; Image reconstruction


 **31/3,K/8     (Item 5 from file: 8)**
DIALOG(R)File   8:Ei Compendex(R)
(c) 2005 Elsevier Eng.   Info. Inc. All rts. reserv.

04708688   E.I. No: EIP97063676645
  Title: **Real-time quantized optical flow**
  Author:  **Camus, Ted**
  Corporate  Source:  Natl  Inst of Standards and Technology, Gaithersburg,
MD, USA
  Source: Real-Time Imaging v 3 n 2 Apr 1997. p 71-86
  Publication Year: 1997
  CODEN: REIMFQ   ISSN: 1077-2014
  Language: English

  Author:  **Camus, Ted**
  Descriptors: *Computer  **vision** ; Real time  **systems** ; Optical flows;
Robotics; Algorithms; Image processing; Computational complexity;
Performance; Computer hardware; Computer workstations


 **31/3,K/9     (Item 6 from file: 8)**
DIALOG(R)File   8:Ei Compendex(R)
(c) 2005 Elsevier Eng.   Info. Inc. All rts. reserv.

04180062   E.I. No: EIP95022570247
  Title: **Calculating time-to-collision with real-time optical flow**
  Author:  **Camus, Ted**
  Corporate  Source:  Brown  Univ.  and  MPI  fuer  Biologische Kybernetik,
Providence, RI, USA
  Conference Title: Visual Communications and Image Processing '94
  Conference    Location:    Chicago,    IL,    USA    Conference    Date:
19940925-19940929
  E.I. Conference No.: 22058
  Source:  Proceedings  of  SPIE  -  The  International Society for Optical
Engineering v 2308 n p 1 1994. p 661-670
  Publication Year: 1994
  CODEN: PSISDG   ISSN: 0277-786X   ISBN: 0-8194-1638-X
  Language: English

  Author:  **Camus, Ted**

Descriptors: *Computer **vision** ; Robotics; Real time **systems** ;
Algorithms; Collision avoidance; Motion planning


**31/3,K/10      (Item 1 from file: 65)**
DIALOG(R)File  65:Inside Conferences
(c) 2005 BLDSC all rts. reserv. All rts. reserv.

03813889   INSIDE CONFERENCE ITEM ID: CN040069161
**Combining EMS-Vision and Horopter Stereo for Obstacle Avoidance  of
Autonomous Vehicles**
   Siedersberger, K.-H.; Pellkofer, M.; Lutzeler, M.; Dickmanns, E.  D.;
**Rieder, A. ;  Mandelbaum, R. ;** Bogoni, L.
   CONFERENCE: International workshop on computer vision systems-2nd
   LECTURE NOTES IN COMPUTER SCIENCE, 2001; VOL 2095  P: 139-156
   Berlin, Springer, 2001
   ISSN: 0302-9743 ISBN: 3540422854
   LANGUAGE: English  DOCUMENT TYPE: Conference Papers
      CONFERENCE EDITOR(S): Schiele, B.; Sagerer, G.
      CONFERENCE LOCATION: Vancouver 2001; Jul (200107) (200107)
   NOTE:
      Also known as ICVS 2001

   Siedersberger, K.-H.; Pellkofer, M.; Lutzeler, M.; Dickmanns, E.  D.;
**Rieder, A. ;  Mandelbaum, R. ;** Bogoni, L.
   DESCRIPTORS: computer **vision    systems** ; ICVS


**31/3,K/11      (Item 2 from file: 65)**
DIALOG(R)File  65:Inside Conferences
(c) 2005 BLDSC all rts. reserv. All rts. reserv.

03813888   INSIDE CONFERENCE ITEM ID: CN040069150
**Radar and Vision Data Fusion for Hybrid Adaptive Cruise Control  on
Highways**
   Hofmann, U.; **Rieder, A. ;** Dickmanns, E. D.
   CONFERENCE: International workshop on computer vision systems-2nd
   LECTURE NOTES IN COMPUTER SCIENCE, 2001; VOL 2095  P: 125-138
   Berlin, Springer, 2001
   ISSN: 0302-9743 ISBN: 3540422854
   LANGUAGE: English  DOCUMENT TYPE: Conference Papers
      CONFERENCE EDITOR(S): Schiele, B.; Sagerer, G.
      CONFERENCE LOCATION: Vancouver 2001; Jul (200107) (200107)
   NOTE:
      Also known as ICVS 2001

   Hofmann, U.; **Rieder, A. ;** Dickmanns, E. D.
   DESCRIPTORS: computer **vision    systems** ; ICVS


**31/3,K/12      (Item 3 from file: 65)**
DIALOG(R)File  65:Inside Conferences
(c) 2005 BLDSC all rts. reserv. All rts. reserv.

03330378   INSIDE CONFERENCE ITEM ID: CN035198866
**Trinocular Divergent Stereo Vision**
   **Rieder, A.**
   CONFERENCE:  vol 1; Computer vision International conference on pattern

recognition-13th
INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION, 1996; 13TH; VOLS 1-4
P: 859-863
IEEE Computer Society Press, 1996
ISSN: 1051-4651 ISBN: 081867282X; 0818672706
LANGUAGE: English   DOCUMENT TYPE: Conference Papers
  CONFERENCE SPONSOR: IEEE Computer Society
  CONFERENCE LOCATION: Vienna
  CONFERENCE DATE:  Aug 1996 (199608) (199608)
NOTE:
  Also known as IAPR

 **Rieder, A.**
DESCRIPTORS: pattern recognition; IAPR; computer  **vision** ; robotic
    **systems** ;  signal analysis
?

38/3,K/1      (Item 1 from file: 2)
DIALOG(R)File   2:INSPEC

7316358    INSPEC Abstract Number: C2002-08-3360L-072
  Title:  Guidance  and  relative navigation for autonomous rendezvous in a
circular orbit
  Author(s): Hablani, H.B.; Tapper, M.L.; Dana-Bashian, D.J.
  Author Affiliation: Flight  Syst.  Design & Anal., The  Boeing  Co.,
Huntington Beach, CA, USA
  Journal: Journal of Guidance, Control, and Dynamics    vol.25, no.3    p.
553-62
  Publisher: AIAA,
  Publication Date: May-June 2002  Country of Publication: USA
  CODEN: JGCDDT  ISSN: 0731-5090
  SICI: 0731-5090(200205/06)25:3L.553:GRNA;1-T
  Material Identity Number: C746-2002-004
  U.S. Copyright Clearance Center Code: 0731-5090/02/$10.00
  Language: English
  Subfile: C

  ...Abstract:  autonomous  guidance  of  spacecraft  to  approach,  to fly
around,  and  to  depart  from  a  target  **vehicle**  in a circular orbit are
presented.  The  algorithms are based on the closed-form solution of linear
Clohessy-Wiltshire  equations.  The  approach and departure algorithms are
 **adaptations**   of the glide slope guidance used in the past for rendezvous
and  proximity  operations  of the space shuttle with other **vehicles** with
astronauts  in the guidance loop. The multipulse glide slope algorithms are
general, capable of...

...  a  translation  motion  of  spacecraft  in  any  direction  in  space
autonomously,  decelerating  while  approaching  a   **target**   or a **nearby**
 **location**   ,  and  accelerating  while  receding. The fly-around algorithm
enables the spacecraft to circumnavigate a target...

... of  the  spacecraft relative to the target. This relative navigation is
performed  with  an  extended  **Kalman**   **filter** .  Several scenarios are
simulated to illustrate the guidance algorithms and relative navigation.
    ...Descriptors: **Kalman**   **filters** ; ...

...space **vehicles**
    ...Identifiers: **Kalman**   **filter** ;


 38/3,K/2      (Item 1 from file: 6)
DIALOG(R)File   6:NTIS

0569752  NTIS Accession Number: AD-915 627/4/XAB
  **Time, Space, Position, Information (TSPI) Study**
  (Final rept. Jul 72-Jan 73)
  Mellenger,  T. H. ; Dziuba, C. ; Jenney, W. P. ; Newton, D. J. ; Meagher,
D. P.
  Calspan Corp Buffalo N Y
  Corp. Source Codes: 407727
  Report No.: CALSPAN-TD-5187-D-1; RADC-TR-73-243
  Oct 73   236p

...for a Continental Operating Range (COR). The tracking requirements for the COR are twofold. The **near** term (or initial system) requirements (1-5 years) are for tracking 16 aircraft within a...

...or future system) requirements (5-10 years) are for tracking 60 aircraft and 40 ground **vehicles** within a 200 n.mi. diameter circle. The study was to provide guidelines of techniques that would satisfy **near** term requirements as well as having long term growth potential for satisfying the far term...

... Major emphasis was given to the analysis of hardware developed ranging systems that could, with **modifications** , satisfy the Air Force's **near** term tracking requirements. The two sytems which will most likely satisfy the **near** term requirements are Cubic Corporations's Air Combat Maneuvering Range (ACMR) and General Dynamic's...

...Descriptors: systems; Computers; Lasers; Cathode ray tubes; Loran; Radio navigation; Tacan; Inertial navigation; Light emitting diodes; **Kalman filtering** ; Position( **Location** ); Computer programs; Aircraft; **Targets** ; Multiple operation; Human factors engineering; Costs; Real time; Liquid crystals; Plasma medium; Interferometers

**38/3,K/3** **(Item 1 from file: 8)**
DIALOG(R)File 8:Ei Compendex(R)

06076433 E.I. No: EIP02266995475
 Title: **Guidance and relative navigation for autonomous rendezvous in a circular orbit**
 Author: Tapper, Myron L.; Dana-Bashian, David J.; Hablani, H.B.
 Corporate Source: The Boeing Company, Huntington Beach, CA 92647, United States

...Abstract: autonomous guidance of spacecraft to approach, to fly around, and to depart from a target **vehicle** in a circular orbit are presented. The algorithms are based on the closed-form solution of linear Clohessy-Wiltshire equations. The approach and departure algorithms are **adaptations** of the glideslope guidance used in the past for rendezvous and proximity operations of the space shuttle with other **vehicles** with astronauts in the guidance loop. The · multipulse glideslope algorithms are general, capable of effecting a translation motion of spacecraft in any direction in space autonomously, decelerating while approaching a **target** or a **nearby** **location** , and accelerating while receding. The flyaround algorithm enables the spacecraft to circumnavigate a target spacecraft...

...of the spacecraft relative to the target. This relative navigation is

performed with an extended **Kalman** **filter** using range and angle
measurements of the target relative to the spacecraft focal plane and...
  Descriptors: *Navigation systems; Electronic guidance systems; Spacecraft
; Space rendezvous; Orbits; Navigation; **Adaptive** algorithms; Proximity
sensors; **Collision** **avoidance** ; Motion control; Acceleration control;
Position control; Velocity control
?

6118596    INSPEC Abstract Number: C9902-3360F-007
   Title: **Performance evaluation of UGV** obstacle    detection  **with CCD/FLIR**
stereo  **vision and LADAR**
   Author(s):  Matthies,  L.; Litwin, T.; Owens, K.; Rankin, A.; Murphy, K.;
Coombs, D.; Gilsinn, J.; Tsai hong; Legowik, S.; Nashman, M.; Yoshimi, B.
   Author Affiliation: Jet Propulsion Lab., California Inst. of Technol.,
Pasadena, CA, USA
   Conference Title: Proceedings of the 1998 IEEE International Symposium on
Intelligent Control (ISIC) held jointly with IEEE International Symposium
on Computational Intelligence in Robotics and Automation (CIRA) Intelligent
Systems and Semiotics (ISAS) (Cat. No.98CH36262))    p.658-70
   Publisher: IEEE, New York, NY, USA
   Publication Date: 1998  Country of Publication: USA     899 pp.
   ISBN: 0 7803 4423 5     Material Identity Number: XX98-02019
   U.S. Copyright Clearance Center Code: 0 7803 4423 5/98/$10.00
   Conference Title: Proceedings of the 1998 IEEE International Symposium on
Intelligent Control (ISIC) held jointly with IEEE International Symposium
on Computational Intelligence in Robotics and Automation (CIRA) Intelligent
Systems and Semiotics (ISAS) (Cat. No.98CH36262)
   Conference Sponsor: IEEE  Int. Symposium on Intelligent Control (ISIC);
Int. Symposium on Comput. Intelligence in Robotics & Autom. (CIRA);
Intelligent Syst. & Semiotics (ISAS); NIST; IEEE Control Syst. Soc. (CSS);
NSF; U.S. Army Res. Office (ARO); IEEE Neural Network Council (NNC); IEEE
Robotics & Autom. Soc. (RAS)
   Conference Date: 14-17 Sept. 1998    Conference Location: Gaithersburg,
MD, USA
   Language: English
   Subfile: C
   Copyright 1998, IEE

   Title: **Performance evaluation of UGV** obstacle    detection  **with CCD/FLIR**
stereo  **vision and LADAR**
   Abstract:  The next phase of unmanned ground **vehicle** (UGV) development,
the Demo III programme, aims to enable round-the-clock operation with
autonomous...

... such driving speeds, and describes data collection and performance
evaluation efforts with three different range **imaging** **systems** : 1)
**stereo** **vision** with CCD cameras, 2) **stereo** vision with InSb FLIR
cameras operating in the 3-5 mu m band, and 3) the Dornier EBK LADAR. The
LADAR and the FLIR **stereo** are applicable to day and night operation; the
CCD **stereo** to day operation only. This paper describes the data set and
preliminary **obstacle** **detection** results obtained. Ongoing performance
evaluation with this data set will guide **obstacle** **detection** sensor
selection and development for the Demo III Programme.
   Descriptors: **collision** avoidance...

... **stereo** **image** processing...

... **vehicles**
   ...Identifiers: **obstacle** **detection** ; ...

...FLIR **stereo** vision...

...unmanned ground **vehicle** ;


43/3,K/2      (Item 2 from file: 2)

5501632    INSPEC Abstract Number: C9703-3360B-070
  **Title:  Visual navigation along reference lines and**  collision  avoidance
**for autonomous**  vehicles
  Author(s): Kato, S.; Tomita, K.; Tsugawa, S.
  Author Affiliation: Mech. Eng. Lab., AIST, Tsukuba, Japan
  Conference  Title:  Proceedings  of  the  1996  IEEE Intelligent Vehicles
Symposium (Cat. No.96TH8230)     p.385-90
  Publisher: IEEE, New York, NY, USA
  Publication Date: 1996  Country of Publication: USA    viii+427 pp.
  ISBN: 0 7803 3652 6     Material Identity Number: XX96-02877
  U.S. Copyright Clearance Center Code: 0 7803 3652 6/96/$5.00
  Conference Title: Proceedings of Conference on Intelligent Vehicles
  Conference  Sponsor: IEEE Ind. Electron. Soc.; Assoc. Electron., Technol.
Automobile Traffic & Driving; IEEE VTS Tokyo Chapter; Int. Assoc. Traffic &
Safety  Sci.; Japanese Soc. Artificial Intelligence; Mech. Eng. Lab., AIST,
MITI;  Seikei  Univ.; Soc. Automotive Eng. Japan; Inst. Electr. Eng. Japan;
IEICE  of  Japan;  Inst. Image Electron. Eng. Japan; Inst. Syst., Control &
Inf.  Eng.;  Japan  Soc.  Mech.  Eng.; Robotics Soc. Japan; Soc. Instrum. &
Control Eng
  Conference Date: 19-20 Sept. 1996    Conference Location: Tokyo, Japan
  Language: English
  Subfile: C

  **Title:  Visual navigation along reference lines and**  collision  avoidance
**for autonomous**  vehicles
  Abstract: This paper describes the algorithms for generation of paths and
lateral  control  of an unmanned **vehicle** with a **stereo  vision   system**
for  autonomous  navigation  and  **collision**  avoidance. One camera of the
**stereo   vision   system** detects reference lines along which the **vehicle**
is  guided,  and the **stereo   vision   system  detects   obstacles** . The
lateral  control  consists  of  steps  of  the  reference line **detection** ,
**obstacle    detection** ,  path  generation,  and  calculation  of lateral
control. The coefficient of the cubic curve that approximates...
  ...Descriptors: **automobiles** ; ...

... **stereo   image** processing
  ...Identifiers: **collision**  avoidance...

...autonomous **vehicles** ; ...

...unmanned **vehicle** ; ...

... **stereo   vision   system** ; ...

... **obstacle   detection** ;


43/3,K/3      (Item 3 from file: 2)

5224606    INSPEC Abstract Number: C9605-3390C-029
  Title: **Stereovision systems for autonomous mobile robots**
   Author(s): Takeno, J.; Rembold, U.
   Author Affiliation: Sch. of Sci. & Technol., Meiji Univ., Kawasaki, Japan
   Conference Title: Intelligent Autonomous Systems. IAS-4. Proceedings of
the International Conference    p.26-41
   Editor(s): Rembold, U.; Dillmann, R.; Hertzberger, L.O.; Kanade, T.
   Publisher: IOS Press, Amsterdam, Netherlands
   Publication Date: 1995  Country of Publication: Netherlands    ix+730 pp.
   Material Identity Number: XX95-00339
   Conference Title: Proceedings of International Conference on Intelligent
Autonomous Systems
   Conference Date: 27-30 March 1995    Conference Location: Karlsruhe,
Germany
   Language: English
   Subfile: C
   Copyright 1996, IEE

   Abstract: This paper discusses **stereo vision systems** in general and
introduces one of such a system for the navigation of an autonomous mobile
robot. The **system** uses passive type **vision** comprising two objective
lenses and one CCD camera. It is a pure optical system with no internal
mechanical moving components. The camera is of a split **images** design. It
splits the two **images** obtained by individual special masks placed behind
the right and left objective lenses and projects the **images** on a CCD
camera, providing an **auto** -focusing sub-system. The system uses
interpolation and statistical methods to **detect objects** such as a human
on the path along which a mobile robot drives. The data...

...KAMRO (Karlsruhe Autonomous Mobile Robot) of the Karlsruhe University in
Germany, and its ability to **detect objects** was demonstrated.
   Descriptors: CCD **image** sensors...

... **stereo image** processing
   ...Identifiers: **stereo vision systems** ; ...

...split **images** ; ...

... **auto** -focusing...

... **collision** avoidance


   **43/3,K/4    (Item 4 from file: 2)**

04076995    INSPEC Abstract Number: C9203-5260B-037
   Title: A stereo vision system **for real time obstacle avoidance in
unknown environment**
   Author(s): Ferrari, F.; Grosso, E.; Sandini, G.; Magrassi, M.
   Author Affiliation: Dept. of Comput. Commun. & Syst. Sci., Genova Univ.,
Italy
   Conference Title: Proceedings. IROS '90. IEEE International Workshop on
Intelligent Robots and Systems '90. Towards a New Frontier of Applications
(Cat. No.90TH0332-7)    p.703-8 vol.2
   Publisher: IEEE, New York, NY, USA

Publication Date: 1990 Country of Publication: USA 2 vol.
(xxxx+1046+suppl.) pp.
Conference Sponsor: IEEE; Robotics Soc. Japan; et al
Conference Date: 3-6 July 1990    Conference Location: Ibaraki, Japan
Language: English
Subfile: C

Title: A stereo vision system **for real time obstacle avoidance in
unknown environment**
Abstract: A **stereo vision system** for **detecting** and avoiding
**obstacles** in real time in an unknown environment is described. This is
only the low level...

... mobile robot based on the Brook's subsumption architecture. This level
is based on a **stereo** vision algorithm that uses precomputed measurement
of the ground floor disparity, and online acquired grey-level **stereo**
**images** . The floor is supposed to be planar. The algorithm has been
successfully implemented on a mobile **vehicle** , that is capable of moving
around in an unpredictable environment, like a laboratory, without
**collision** .
...Identifiers: **stereo vision system** ; ...

...grey-level **stereo images**


**43/3,K/5      (Item 1 from file: 8)**
DIALOG(R)File   8:Ei Compendex(R)
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06296847   E.I. No: EIP03077362902
Title: Stereo -based collision **avoidance system for urban traffic**
Author: Moriya, Takashi; Ishikawa, Naoto; Sasaki, Kazuyuki; Nakajima,
Masato
Corporate Source: Dept. of Electronics and Elec. Eng. Keio University,
Keio, Japan
Conference Title: Applications of Digital Image Processing XXV
Conference Location: Seattle, WA, United States   Conference Date:
20020708-20020710
E.I. Conference No.: 60678
Source: Proceedings of SPIE - The International Society for Optical
Engineering v 4790 2002. p 417-424
Publication Year: 2002
CODEN: PSISDG   ISSN: 0277-786X
Language: English

Title: Stereo -based collision **avoidance system for urban traffic**
Abstract: Numerous **car** accidents occur on urban road. However,
researches done so far on driving assistance are subjecting...

...road; drivers may lack the sense of awareness of the lane mark. We
propose a **collision** avoidance system, which can be applied to both
highways and urban traffic environment. In our system, **stereo** cameras
are set in front of a **vehicle** and the captured **images** are processed
through a computer. We create a Projected Disparity Map (PDM) from **stereo**
**image** pair, which is a disparity histogram taken along ordinate direction
of obtained disparity **image** . When there is an obstacle in front, we can
detect it by finding a peak...

...and a steering sensor, the stop distance and the radius of curvature of the self- **vehicle** are calculated, in order to set the observation-required area, which does not depend on...

...level will be computed from the distance and the relative speed to the closest approaching **object** **detected** within the observation-required area. The method has been tested in urban traffic scenes and...

Descriptors: *Imagin g systems ; **Collision** avoidance; **Stereo vision** ; Highway traffic control; Cameras; **Image** analysis; Computer simulation; Speed indicators; Steering; Calculations; Highway markings; Object recognition; **Image** sensors

Identifiers: Urban traffic; **Stereo** cameras; Projected disparity map; Disparity histogram


43/3,K/6    (Item 2 from file: 8)
DIALOG(R)File    8:Ei Compendex(R)
(c) 2005 Elsevier Eng.  Info. Inc. All rts. reserv.

05309011    E.I. No: EIP99074709202
  Title: **New neural real-time implementation for** obstacle detection **using linear** stereo **vision**
  Author: Ruichek, Yassine; Postaire, Jack-Gerard
  Corporate Source: Universite des Sciences et Technologies de Lille, Villeneuve d'Ascq, Fr
  Source: Real-Time Imaging v 5 n 2 1999. p 141-153
  Publication Year: 1999
  CODEN: REIMFQ    ISSN: 1007-2014
  Language: English

  Title: **New neural real-time implementation for** obstacle detection **using linear** stereo **vision**
  Abstract: This paper presents a neural **vision** system for real-time **obstacle** **detection** in front of a moving **vehicle** using linear **stereo** vision. The key problem is the correspondence task which consists of matching features in two **stereo** images that are projections of the same physical entity in the three-dimensional world. The linear **stereo** correspondence problem is formulated as an optimization task. An energy function, which represents the constraints...
  ...Hopfield neural network for minimization. The system has been evaluated with experimental results on real **stereo** images . (Author abstract) 18 Refs.
  Descriptors:  *Stere o vision; Neural networks; Real time systems; **Collision** avoidance; Optimization; Constraint theory
  Identifiers: Linear **stereo** vision


43/3,K/7    (Item 3 from file: 8)
DIALOG(R)File    8:Ei Compendex(R)
(c) 2005 Elsevier Eng.  Info. Inc. All rts. reserv.

04641551    E.I. No: EIP97033547217
  Title: **Drive assist system using** stereo image **recognition**
  Author: Saneyoshi, Keiji
  Corporate Source: Subaru Research Cent Co, Ltd, Tokyo, Jpn
  Conference Title: Proceedings of the 1996 IEEE Intelligent Vehicles Symposium
  Conference Location: Tokyo, Jpn   Conference Date: 19960919-19960920

E.I. Conference No.: 46130
Source: IEEE Intelligent Vehicles Symposium, Proceedings 1996. IEEE, Piscataway, NJ, USA,96TH8230. p 230-235
Publication Year: 1996
CODEN: 001680
Language: English

Title: **Drive assist system using** stereo image **recognition**
Abstract: A safety **vehicle** using an **obstacle** **detection** system with a **stereo** **image** sensor has been developed. The **stereo** **image** sensor was chosen as a more suitable sensor, compared to a laser radar or a millimeter wave radar. The matching method adopted for this **stereo** system is the small area based matching to yield a distance distribution **image** . The road shape and solids are recognized from the distance distribution **image** . This safety **vehicle** has three functions for the `avoidance stage' proposed in ASV (Advanced Safety **Vehicle** ) project as follows: (1) a **collision** alarm system. (2) an autonomous **collision** avoidance system. (3) lane keeping alarm system. Reduction rates by this safety **vehicle** for a rear-end **collision** and a **collision** encountered at a intersection were estimated. It was recognized that the system was greatly effective for both type of **collisions** . (Author abstract) 3 Refs.
Descriptors: *Intelligent **vehicle** highway systems; **Obstacle** detectors ; **Image** sensors; **Stereo** vision ; Accident prevention; Alarm **systems** ; **Collision** avoidance
Identifiers: Advanced safety **vehicles** (ASV); Driver assist systems


**43/3,K/8** **(Item 4 from file: 8)**
DIALOG(R)File 8:Ei Compendex(R)
(c) 2005 Elsevier Eng. Info. Inc. All rts. reserv.

04608817 E.I. No: EIP97013502704
Title: Stereo vision system **for real-time automotive** obstacle detection
Author: Bertozzi, Massimo; Broggi, Alberto; Fascioli, Alessandra
Corporate Source: Universita di Parma, Parma, Italy
Conference Title: Proceedings of the 1996 IEEE International Conference on Image Processing, ICIP'96. Part 2 (of 3)
Conference Location: Lausanne, Switz Conference Date: 19960916-19960919
E.I. Conference No.: 45905
Source: IEEE International Conference on Image Processing v 2 1996. IEEE, Los Alamitos, CA, USA,96CH35919. p 681-684
Publication Year: 1996
CODEN: 85QTAW
Language: English

Title: Stereo vision system **for real-time automotive** obstacle detection
Abstract: This work presents a system for **obstacle** **detection** in pair of **images** acquired by a **stereo** vision device installed on a moving **vehicle** . The whole system is structured in a pipeline of two different computational engines: a massively parallel architecture, PAPRICA, devoted to low-level **image** processing and a traditional serial architecture running medium-level tasks. A geometrical transformation, based on the assumption of a flat road in front of the **vehicle** , is performed to remove the perspective effect from both **images** . The difference between the results is used for the detection of free-space in front of the **vehicle** ,

thus allowing to avoid the high computational tasks involved in traditional
**stereo** vision approaches; the geometrical transformation is performed by
a specific hardware device integrated in PAPRICA architecture. The system
was tested on MOB-LAB experimental land **vehicle** , which was driven for
more than 3000 km along extra-urban roads and freeways at...

...demonstrated its robustness with respect to shadows and changing
illumination conditions, different road textures, and **vehicle** movement.
(Author abstract) 13 Refs.
   Descriptors:  *Stere o vision; Computer architecture; Pattern recognition
systems; Mathematical transformations; **Collision** avoidance; Computer
**vision** ; Parallel processing **systems**

04295980    E.I. No: EIP95122936424
   Title:  **Real-time neural vision for** obstacle detection **using linear
cameras**
   Author: Ruichek, Yassine; Postaire, Jack-Gerard
   Corporate Source: Universite des Sciences et Technologies de Lille,
Villeneuve d'Ascq, Fr
   Conference Title: Proceedings of the 1995 Intelligent Vehicles Symposium
   Conference Location: Detroit, MI, USA Conference Date:
19950925-19950926
   E.I. Conference No.: 44014
   Source: Intelligent Vehicles Symposium, Proceedings 1995. IEEE,
Piscataway, NJ, USA,95TH8132. p 524-529
   Publication Year: 1995
   CODEN: 001680
   Language: English

   Title:  **Real-time neural vision for** obstacle detection **using linear
cameras**
   Abstract: This paper presents a neural **vision** **system** for real-time
**obstacle detection** in front of **vehicles** using a linear **stereo** vision
set-up. The problem addressed here consists in identifying features in two
**images** that are projections of the same physical entity in the
three-dimensional world. The linear **stereo** correspondence problem is
formulated as an optimization problem. An energy function, which represents
the constraints...

...Hopfield neural network for minimization. The system has been evaluated
with experimental results on real **stereo** **images** . (Author abstract) 6
Refs.
   Descriptors: *Computer vision; Cameras; Edge detection; Neural networks;
Real time systems; **Collision** avoidance; **Automobile** electronic equipment
; Computational methods; Optimization
   Identifiers: Linear cameras; **Obstacle** **detection** ; Real time neural
vision; Hopfield neural networks; Real **stereo** **images**

04295914    E.I. No: EIP95122936358
   Title: **New edge** detector **for** obstacle detection **with a linear** stereo vision system
   Author: Wan, Yue Feng; Cabestaing, Francois; Burie, Jean-Christophe
   Corporate Source: Universite des Sciences et Technologies de Lille, Villeneuve d'Ascq, Fr
   Conference Title: Proceedings of the 1995 Intelligent Vehicles Symposium
   Conference Location: Detroit, MI, USA Conference Date: 19950925-19950926
   E.I. Conference No.: 44014
   Source: Intelligent Vehicles Symposium, Proceedings 1995. IEEE, Piscataway, NJ, USA,95TH8132. p 130-135
   Publication Year: 1995
   CODEN: 001680
   Language: English

   Title: **New edge** detector **for** obstacle detection **with a linear** stereo vision system
   Abstract: The problem addressed in this paper is **obstacle detection** in front of a moving **vehicle** . One of the main difficulties encountered when scanning **stereo** pairs of linear **images** is the extraction of significant features from the left and right **images** . The better the features, the more reliable is the matching procedure for 3-D reconstruction of the **car** environment. In this paper we present a new edge detector which has been developed for...
   Descriptors: *Computer vision; Edge detection; **Stereo** vision; Feature extraction; Three dimensional; **Image** reconstruction; Object recognition; **Collision** avoidance; Pattern recognition systems
   Identifiers: **Obstacle detection** ; Linear **stereo vision system**


   43/3,K/11      (Item 7 from file: 8)
DIALOG(R)File    8:Ei Compendex(R)
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04295903    E.I. No: EIP95122936347
   Title: Obstacle detection **for unmanned ground** vehicles : **A progress report**
   Author: Matthies, Larry; Kelly, Alonzo; Litwin, Todd; Tharp, Greg
   Corporate Source: California Inst of Technology, Pasadena, CA, USA
   Conference Title: Proceedings of the 1995 Intelligent Vehicles Symposium
   Conference Location: Detroit, MI, USA Conference Date: 19950925-19950926
   E.I. Conference No.: 44014
   Source: Intelligent Vehicles Symposium, Proceedings 1995. IEEE, Piscataway, NJ, USA,95TH8132. p 66-71
   Publication Year: 1995
   CODEN: 001680
   Language: English

   Title: Obstacle detection **for unmanned ground** vehicles : **A progress report**
   Abstract: To **detect obstacles** during off-road autonomous navigation, unmanned ground **vehicles** (UGV's) must sense terrain geometry and composition (ie. terrain type) under day, night, and low-visibility conditions. To sense terrain geometry, we have developed a real-time **stereo vision system** that uses a Datacube MV-200 and a 68040 CPU board to produce 256 multiplied by 240-pixel range **images** in about 0.6

seconds/frame. To sense terrain type, we are using the same computing hardware with red and near infrared **imagery** to classify 256 multiplied by 240-pixel frames into vegetation and non-vegetation regions at...

...navigation over the past five years. This work has been the first to show that **stereo** vision can be practical for autonomous UGV navigation, and is now the first to show...

   Descriptors: **\*Collisio** n avoidance; Off road **vehicles** ; Navigation **systems** ; **Stereo** **vision** ; Pattern recognition **systems** ; Infrared **imaging** ; **Image** sensors; Mobile robots; Proximity sensors

   Identifiers: **Obstacle** **detection** ; Unmanned ground **vehicles** ; Terrain geometry; Terrain type


  **43/3,K/12**     **(Item 1 from file: 99)**
DIALOG(R)File  99:Wilson Appl. Sci & Tech Abs
(c) 2005 The HW Wilson Co. All rts. reserv.

1846406 H.W. WILSON RECORD NUMBER: BAST99000787
**Autonomous driving goes downtown**
Franke, Uwe; Gavrila, Dariu; Gorzig, Steffen
IEEE Intelligent Systems & Their Applications v. 13 no6 (Nov./Dec. '98) p. 40-8
DOCUMENT TYPE: Feature Article ISSN: 1094-7167

...ABSTRACT: and appropriate algorithms and approaches for vision-module control in urban traffic are discussed. The **system** features **stereo** **vision** for depth-based **obstacle** **detection** and **tracking** and a framework for monocular detection and **identification** of relevant **objects** without requiring a supercomputer. The system is discussed in terms of urban applications and vision tasks, **stereo** -based **obstacle** **detection** and **tracking** , **object** recognition, and the combination of these factors.

DESCRIPTORS: **Collision** avoidance systems (Motor **vehicles** ); ...

... **Automobiles** --...

...Real time **imaging** ; ;


  **43/3,K/13**     **(Item 1 from file: 144)**
DIALOG(R)File 144:Pascal
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  14567379    PASCAL No.: 00-0233873
  **Robust real-time ground plane motion compensation from a moving** vehicle
  KRUEGER W
  Fraunhofer-Inst fuer Informations- und Datenverarbeitung (IITB), Karlsruhe, Germany
  Journal: Machine Vision and Applications, 1999, 11 (4) 203-212
  Language: English

  **Robust real-time ground plane motion compensation from a moving** vehicle
  One method to **detect** **obstacles** from a **vehicle** moving on a planar road surface is the analysis of motion-compensated difference **images** . In this contribution, a motion compensation algorithm is presented, which computes the required **image** -warping parameters from an estimate of the relative motion between camera and ground plane. The proposed algorithm

estimates the warping parameters from displacements at **image** corners and **image** edges. It exploits the estimated confidence of the displacements to cope robustly with outliers. Knowledge...

...to stabilize the estimation process when there is not enough information available in the measured **image** displacements. The motion compensation algorithm has been integrated with modules for **obstacle detection** and lane **tracking** . This system has been integrated in experimental **vehicles** and runs in real time with an overall cycle of 12.5 Hz on low...

English Descriptors: Ground plane motion compensations; Driver assistance **systems** ; Application; **Stereo vision** ; **Image** analysis; Real time systems; **Collision** avoidance; Algorithms; Cameras; Signal detection; **Image** reconstruction; Computer vision; Theory

French Descriptors: Application; **Vision** stereoscopique; Analyse **image** ; **Systeme** temps reel; Prevention esquive **collision** ; Algorithme; Appareil photographique; Detection signal; Reconstruction **image** ; Vision ordinateur; Theorie

**43/3,K/14      (Item 2 from file: 144)**
DIALOG(R)File 144:Pascal
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13811903    PASCAL No.: 98-0527416
, **The experience of the ARGO autonomous** vehicle
**Signal processing, sensor fusion, and target recognition VII : Orlando FL, 13-15 April 1998**
BERTOZZI M; BROGGI A; CONTE G; FASCIOLI A
VERLY Jacques G, ed
Dipartimento di Ingegneria dell'Informazione, Universita di Parma, 43100 Parma, Italy
International Society for Optical Engineering, Bellingham WA, United States.
Enhanced and synthetic vision. Conference  (Orlando FL USA) 1998-04-13
Journal: SPIE proceedings series,  1998, 3364 218-229
Language: English

**The experience of the ARGO autonomous** vehicle
This paper presents and discusses the first results obtained by the GOLD (Generic **Obstacle** and Lane **Detection** ) system as an automatic driver of ARGO. ARGO is a Lancia Thema passenger **car** equipped with a **vision** -based **system** that allows to extract road and environmental information from the acquired scene. By means of **stereo** vision, obstacles on the road are detected and localized, while the processing of a single monocular **image** allows to extract the road geometry in front of the **vehicle** . The generality of the underlying approach allows to **detect** generic **obstacles** (without constraints on shape, color, or symmetry) and to detect lane markings even in dark...

... 200Mhz with MMX technology and a frame-grabber board able to acquire 3 b/w **images** simultaneously; the result of the processing (position of obstacles and geometry of the road) is...

English Descriptors: Motor **car** ; Artificial vision; **Collision** avoidance;
Pavement; Autonomous system; Robotics; Moving robot; Carriageway marking

French Descriptors: **Automobile** ; Vision artificielle; Prevention esquive
**collision** ; Chaussee; Systeme autonome; Robotique; Robot mobile; Marquage
chaussee
?

4852581    INSPEC Abstract Number: B9502-6140C-176, C9502-5260B-127
  Title: **Application of the controlled active vision framework to robotic and transportation problems**
  Author(s): Smith, C.E.; Papanikolopoulos, N.P.; Brandt, S.A.
  Author Affiliation: Dept. of Comput. Sci., Minnesota Univ., Minneapolis, MN, USA
  p.213-20
  Publisher: IEEE Comput. Soc. Press, Los Alamitos, CA, USA
  Publication Date: 1994  Country of Publication: USA    xi+298 pp.
  ISBN: 0 8186 6410 X
  U.S. Copyright Clearance Center Code: 0 8186 6410 X/94/$4.00
  Conference Title: Proceedings of 1994 IEEE Workshop on Applications of Computer Vision
  Conference Sponsor: IEEE Comput. Soc. Tech. Committee on Pattern Anal. & Machine Intelligence
  Conference Date: 5-7 Dec. 1994    Conference Location: Sarasota, FL, USA
  Language: English
  Subfile: B C
  Copyright 1995, IEE

  ...Abstract: from feature points on a target's surface and for the accurate and high-speed **tracking** of moving **targets** . We use these techniques in a system that operates with little or no a priori...

... designed under the controlled active vision framework and robustly determines parameters such as velocity for **tracking** moving **objects** and **depth** **maps** of objects with unknown depths and surface structure. Such determination of intrinsic environmental parameters is essential for performing higher level tasks such as inspection, exploration, tracking grasping, and **collision** -free motion planning. For both applications, we use the Minnesota Robotic Visual Tracker (a single...

... sensor mounted on the end-effector of a robotic manipulator combined with a real-time **vision** **system** ) to automatically select feature points on surfaces, to derive an estimate of the environmental parameter...

... the manipulator. The paper concludes with applications of these techniques to transportation problems such as **vehicle** tracking.
  ...Identifiers: **collision** -free motion planning
  ?

04295923    E.I. No: EIP95122936367
  Title: Collision **avoidance using artificial retina sensor in ALV**
  Author: Kim, Kwang I.; Shin, Cheon W.; Inoguchi, Seiji
  Corporate Source: Pohang Univ of Science and Technology, South Korea
  Conference Title: Proceedings of the 1995 Intelligent Vehicles Symposium
  Conference   Location:    Detroit,   MI,    USA   Conference   Date:
19950925-19950926
  E.I. Conference No.: 44014
  Source:   Intelligent   Vehicles   Symposium,   Proceedings  1995.  IEEE,
Piscataway, NJ, USA,95TH8132. p 183-187
  Publication Year: 1995
  CODEN: 001680
  Language: English

  Title: Collision **avoidance using artificial retina sensor in ALV**
  ...Abstract: which was developed at Osaka university in JAPAN, is applied
to PRV II (POSTECH Road **Vehicle** II) for real time **collision** avoidance
in high speed navigation. ARS consists of a linear CCD sensor and a dove...

...can be utilized directly. Thus we only have to apply an edge detection
and a **template** **matching** method to the horizontal direction. Then a
optical-flow of moving objects is estimated to...
 Descriptors:  **\*Collisio** n avoidance; Image sensors; Charge coupled
devices; Edge **detection** ; Optical flows; **Object** recognition; Image
analysis; Ground **vehicles** ; Intelligent **vehicle** highway **systems** ;
Computer **vision**
  Identifiers: Artificial retina sensor; Autonomous land **vehicle** ; Time to
impact information
?

51/3,K/1       (Item 1 from file: 2)

8212497    INSPEC Abstract Number: B2005-01-6135-354, C2005-01-7445-049
 Title: **Lateral motion tracking of** automobiles
  Author(s): Amditis, A.; Floudas, N.; Polychronopoulos, A.
  Author Affiliation: National Tech. Univ. of Athens, Greece
  Conference Title: Seventh International Conference on Information Fusion
Part Vol.2    p.768-74 Vol.2
  Editor(s): Svensson, P.; Schubert, J.
  Publisher: Int. Soc. of Information Fusion, Mountain View, CA, USA
  Publication Date: 2004   Country of Publication: USA    1301 pp.
  ISBN: 91 7056 116 8    Material Identity Number: XX-2004-01741
  Conference Title: Seventh International Conference on Information Fusion
  Conference Sponsor: Swedish Defence Res. Agency; SAAB AB; Ericsson
Microwave Syst. AB; Lockheed Martin Corp.; Sjoland & Thyselius AB; Int.
Journal of Information Fusion
  Conference Date: 28 June-1 July 2004   Conference Location: Stockholm,
Sweden
  Language: English
  Subfile: B C
  Copyright 2004, IEE

 Title: **Lateral motion tracking of** automobiles
  ...Abstract: successful in range parameters tracking, fall short in
lateral characteristics tracking. On the other hand, **vision systems**
carry out perfect estimation for lateral motion, but range parameters
estimation does not surpass the performance of radar. The exact estimation
of **vehicle** 's motion characteristics appears to be a crucial issue in
modern **automobile collision** avoidance systems. Thus, a fusion system
comprising of radar and a FLIR could offer an...

...moving in highways. The main scope of the paper is the presentation of a
double **Kalman** based **filter** which strives in lateral motion estimation
mainly. The performance of the filter is tested by...
  Descriptors: **collision** avoidance...

... **Kalman filters** ; ...

... **target tracking**
  ...Identifiers: **automobiles** ; ...

... **vision systems** ; ...

... **automobile collision** avoidance systems...

... **target tracking** ; ...

...double **Kalman** based **filter** ;


 51/3,K/2     (Item 2 from file: 2)

7914756    INSPEC Abstract Number: C2004-05-3360B-034
   Title: **A monocular- vision -based driver assistance** system **for**

collision **avoidance**
 Author(s): Liao Chuanjin; Qin Xiaohu; Huang Xiyue; Chai Yi; Zhou Xin
 Author Affiliation: Coll. of Autom., Chongqing Univ., China
 Conference Title: Proceedings of the 2003 IEEE International Conference
on Intelligent Transportation Systems (Cat. No.03TH8708)     Part vol.1
p.463-8 vol.1
 Publisher: IEEE, Piscataway, NJ, USA
 Publication Date: 2003  Country of Publication: USA     2 vol.1785 pp.
 ISBN: 0 7803 8125 4     Material Identity Number: XX-2003-03445
 U.S. Copyright Clearance Center Code: 0 7803 8125 4/2003/$17.00
 Conference Title: Proceedings of the 2003 IEEE International Conference
on Intelligent Transportation Systems
 Conference Date: 12-15 Oct. 2003    Conference Location: Shanghai, China
 Language: English
 Subfile: C
 Copyright 2004, IEE

    Title: **A monocular-** vision **-based driver assistance** system **for**
collision **avoidance**
 ...Abstract: points and how to establish the math model of lanes. An
algorithm based on extend **Kalman filter** for dynamic **target tracking**
is presented in this paper. Analyze the usual calculation method of
distance by multi-eye...

... up to the practical requirement This thesis studies the driving-habits
discovery model of steering **vehicle** for a **vehicle** safety expert system.
 Descriptors: **collision** avoidance...

... **Kalman filters** ; ...

... **target tracking** ;
 Identifiers: monocular **vision** based driver assistance **system** ; ...

... **collision** avoidance...

... **Kalman filter** ; ...

...dynamic **target tracking** ; ...

... **vehicle** steering...
... **vehicle** safety


 51/3,K/3      (Item 3 from file: 2)
DIALOG(R)File   2:INSPEC
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6734584    INSPEC Abstract Number: C2000-11-3360B-027
 Title: **Towards smarter** cars
 Author(s): Sobottka, K.; Meier, E.; Ade, F.; Bunke, H.
 Author Affiliation: Inst. of Comput. Sci. & Appl. Math., Bern Univ.,
Switzerland
 Conference Title: Sensor Based Intelligent Robots. International
Workshop. Selected Papers (Lecture Notes in Artificial Intelligence
Vol.1724)    p.120-39
 Editor(s): Christensen, H.I.; Bunke, H.; Noltemeir, H.
 Publisher: Springer-Verlag, Berlin, Germany
 Publication Date: 1999  Country of Publication: Germany    viii+325 pp.

**Title: Towards smarter** cars
Abstract: Most approaches for **vision** **systems** use grey scale or color
images. In many applications, such as driver assistance or presence...

... to increase safety on motorways. This driver assistance system is
capable of automatically keeping the **car** at an adequate distance or
warning the driver in case of dangerous situations. The problem is
addressed in two steps: **obstacle** **detection** and **tracking** . For
**obstacle** **detection** two different approaches are presented based on ·
slope evaluation and computation of a road model. For tracking, one
approach applies a matching scheme and the other uses a **Kalman** **filter** .
Results are shown from several experiments.
Descriptors: **automobiles ;** ...

... **collision** avoidance
Identifiers: smarter **cars ;** ...

... **obstacle** **detection ;** ...

... **Kalman** **filter ;** ...

... **automobiles ;**


51/3,K/4     (Item 1 from file: 8)
DIALOG(R)File   8:Ei Compendex(R)
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07230106   E.I. No: EIP05048799838
   **Title: Integrated** object **and road border** tracking **using 77 GHz
automotive radars**
Author: Polychronopoulos, A.; Amditis, A.; Floudas, N.; Lind, H.
Corporate Source: Microwaves Laboratory Dept. of Elec. and Comp. ·
Engineering Natl. Technical University of Athens, 15773 Athens, Greece

   **Title: Integrated** object **and road border** tracking **using 77 GHz
automotive radars**
...Abstract: used in automotive on-board systems such as adaptive cruise
control, which tracks the preceding **vehicle** and keeps a safe distance.
The authors go a step further and exploit the potential...

...the estimation of the road borders and the reconstruction of the
traffic scenario based on **object** **tracking** . A FMCW millimetre wave
radar is mounted in the front bumper of a **vehicle** and delivers object
lists to the central fusion processor, where detections are considered as

measurements...

...algorithm presented is designed to improve the prediction of paths and trajectories of the ego- **vehicle** in future enhanced **collision** warning and **collision** avoidance systems. Given the characteristics and limitations of a radar system, such as heavy clutter...

...reliably in highway and extra-urban scenarios and are competitive with data fusion and stereo **vision** **systems** , but with lower computational load. copy IEE, 2004. 18 Refs.
  Descriptors: *Tracking radar; Sensor data fusion; Object recognition; Millimeter wave devices; Algorithms; **Collision** avoidance; Alarm **systems** ; Radar **systems** ; Stereo **vision** ; Tracking (position); **Kalman filtering**
  Identifiers: Automotive radars; Integrated **object** **tracking** ; Road border **tracking** ; Radar sensors; **Collision** warning


  **51/3,K/5**      **(Item 2 from file: 8)**
DIALOG(R)File    8:Ei Compendex(R)
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07041444    E.I. No: EIP04408382255
  Title: **Combined** **road** **prediction** **and** target   tracking **in** collision **avoidance**
  Author: Eidehall, Andreas; Gustafsson, Fredrik
  Corporate Source:  Vehicle Dynamics and Active Safety Volvo Car Corporation, SE-405 31 Goteborg, Sweden
  Conference Title: 2004 IEEE Intelligent Vehicles Symposium
  Conference Location: Parma, Italy   Conference Date: 20040614-20040617
  E.I. Conference No.: 63502
  Source: IEEE Intelligent Vehicles Symposium, Proceedings 2004 IEEE Intelligent Vehicles Symposium 2004.
  Publication Year: 2004
  Language: English

  Title: **Combined** **road** **prediction** **and** target   tracking **in** collision **avoidance**
  Abstract: Detection and tracking of other **vehicles** and lane geometry will be required for many future intelligent driver assistance systems. By integrating...

...to improve the lane curvature estimate during bad visibility by studying the motion of other **vehicles** . This paper derives and evaluates various approximations that are needed in order to deal with...
  Descriptors: *Collisio n avoidance; **Tracking** (position); Radar **target** recognition; Highway accidents; Object recognition; Intelligent **vehicle** highway **systems** ; **Kalman** **filtering** ; Computer **vision**
  Identifiers: **Object** **tracking** ; **Target** **tracking** ; Intelligent automotive systems; Driver assistance systems


  **51/3,K/6**      **(Item 3 from file: 8)**
DIALOG(R)File    8:Ei Compendex(R)
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07036003    E.I. No: EIP04398376665
  Title: **Vasilius: The design of an autonomous ground robotic** vehicle

Author: Snider, Jarrod M.; Snider, Amy E.; Riggins, Robert N.
Corporate Source: Bluefield State College, Bluefield, WV, United States

**Title: Vasilius: The design of an autonomous ground robotic** vehicle

...Abstract: the design and provides a partial analysis of the
performance of an autonomous ground robotic **vehicle** called Vasilius.
Applications for Vasilius include autonomous navigation on a  somewhat
marked path with obstacles...

...mapping, and learning. The design of Vasilius embodies a novel idea of
modeling  an autonomous **vehicle** after human senses and the human
decision-making process. For instance, Vasilius integrates  information
from...
...have been measured include speed, ramp  climbing, turn reaction time,
battery life, stop reaction time,  **object   detection** , and waypoint
accuracy. Finally, the paper  discusses Vasilius' use of a new approach to
filtering...
Descriptors: *Robotics; Unmanned **vehicles** ; Ground  **vehicles** ;
**Collision**  avoidance; Navigation systems; Global positioning **system** ;
Computer **vision** ; Robot learning; **Kalman   filtering** ; State estimation;
Mathematical models
Identifiers: Autonomous ground robotic  **vehicle** ; Autonomous navigation;
Waypoint navigation


**51/3,K/7      (Item 1 from file: 35)**

01254149  ORDER NO: AAD92-37115
**GLOBAL VISION FOR THE CONTROL OF FREE-RANGING AUTOMATIC GUIDED  VEHICLE
SYSTEMS**
Author:  KAY, MICHAEL GEORGE
Degree:  PH.D.
Year:    1992
Corporate Source/Institution:  NORTH CAROLINA STATE UNIVERSITY AT RALEIGH
(0155)
Source:  VOLUME 53/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
         PAGE 3700.  178 PAGES

**GLOBAL VISION FOR THE CONTROL OF FREE-RANGING AUTOMATIC GUIDED  VEHICLE
SYSTEMS**

...dissertation introduces the method of "global vision" for the
control of free-ranging automatic guided **vehicle** (AGV) **systems** . Global
**vision**  refers to the use of cameras placed at fixed locations in a
workspace to extend the local sensing available on board each **vehicle**  in
a free-ranging AGV system. The fixed cameras provide the information to
robustly control AGV systems composed of large numbers of low-cost
**vehicles** . A system with these capabilities can expand the range of
applications for which free-ranging AGVs are a high-performance and
cost-effective material transport alternative. A possible overall global

vision -based AGV control **system** is first described, and then detailed methodologies are presented for camera placement, mobile **object** **tracking** , and **determining** the economic feasibility of global vision-based **vehicle** control. The camera placement problem in global vision refers to the determination of a minimal...

...is described that provides reasonable camera placements. Global vision-based AGV control provides for increased **collision** detection and path planning capabilities due to the ability to **track** mobile **objects** located in regions beyond the range of an AGV's on-board sensors. The tracking performance of a difference-image-based **Kalman** **filter** is detailed, where the correspondence problem is greatly reduced through the use of reference images...

...Each method of control is distinguished by its required equipment costs and the level of **collision** detection capability it provides. The potential impact of global vision for AGV control includes increased...


51/3,K/8      (Item 1 from file: 144)
DIALOG(R)File 144:Pascal
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16035334    PASCAL No.: 03-0182974
IV'2002 : IEEE intelligent vehicle **symposium** : Versailles, 17-21 June 2002
**IEEE symposium sur les vehicules intelligents**
IEEE, United States; INRIA, Le Chesnay, France
Symposium sur les vehicules intelligents  Intelligent vehicle symposium (Versailles FRA) 2002-06-17
2002  2 vol. (IX, 673 p.), ill., index Non-paginated pages/foldouts
Publisher: INRIA, Le Chesnay
Language: English   Summary Language: English

**IV'2002 : IEEE intelligent** vehicle **symposium : Versailles, 17-21 June 2002**
This issue contains 101 papers presented during the IEEE Intelligent **Vehicle** Symposium held in Versailles-France the June 17-21 2002. The proceedings are classified in two parts around the following topics : pedestrian and **obstacle** **detection** , recognition systems, **tracking** systems, adaptative cruise control, electronic stability program, lane keeping assistant, **collision** warning and avoidance, parking assistant, stop & go, intelligent speed adaptation, platooning, **vision** **systems** , sensors, **system** - hardware and software, navigation, communication and control.

English Descriptors: Transportation system; Road transportation; Motor industry; **Vehicle** ; **Tracking(movable target)** ; **Detect ion^Recog** ; Recognition; User assistance; **Vehicle** driving; Behavioral analysis; Navigational aid; **Vision** **system** ; Obstacle; Pedestrian; Alarm system; Moving robot; Intelligent system; Autonomous system; Measurement sensor; GPS system; **Kalman** **filter** ; Fuzzy logic; International conference; Numerical simulation; Image processing; Automatic classification; Parking ; Accident prevention; Traffic lane...

French Descriptors: Systeme transport; Transport routier; Construction
  **automobile** ; Vehicule; Poursuite; Detection; Reconnaissance; Assistance
  utilisateur; Conduite vehicule; Analyse comportementale; Aide navigation;
  **Systeme   vision** ; Obstacle; Pieton; **Systeme** alarme; Robot mobile;
  Systeme intelligent; Systeme autonome; Capteur mesure; Systeme GPS;
  Filtre Kalman; Logique floue...
?